Coles (W)

[Reprint from the ST. LOUIS COURIER OF MEDICINE, November, 1885.]

THE INDUCTION OF PREMATURE LABOR IN CERTAIN CASES.

BY WALTER COLES, M. D.

[*Read before the St. Louis Obstetrical and Gynecological Society, Sept.* 17, 1885.]

THE induction of premature labor in certain cases is now regarded by all leading obstetricians as a perfectly legitimate and highly commendable procedure. And yet no operation in obstetrics has been more severely criticised or tardily adopted in the older civilized countries, unless we except England, where it originated, and even there it was discussed for a long time before it was put into practice. It is said by some, though not generally admitted, that it was first performed by Mary Donally, an obscure midwife, in 1738. The first authentic account of this operation, however, was the result of a formal consultation, held in London about the year 1756, it being put into successful practice shortly afterwards by Dr. McCauley. It was fifty years after this before the operation was recognized in Germany, and even as late as 1827 it was formally protested against by the French Academy. In 1831 it was performed for the first time in France by Prof. Stoltz, and with the "most perfect success."

Presented by author

Although we hold that there are cases where the condition of the mother may be such as to call for the induction of abortion as a *dernier ressort*—both the mother and child being doomed to perish when it is neglected—still this is not the class of cases that is intended to be considered in this paper, which refers rather to the induction of labor at a late period of pregnancy, when the operation is performed in the interest of both parent and offspring, or, in other words, after the seventh month, when the child may be considered viable.

This question is always one of grave responsibility, and should be discussed in a spirit of true conservatism. It presupposes a condition of things requiring decisive action, yet the line of policy to be pursued must be governed rather by sound discretion than cast-iron rules. The cardinal point to be borne in mind is that the operation is undertaken as a means of averting special dangers to the mother or child, generally both.

Although the child is considered viable at the end of seven months, it is still more liable to survive as the full period of pregnancy is approached. There is a strongly rooted popular fallacy that a seven-months child is more prone to live than one born at eight months, but of course we recognize the absurdity of such an idea, and naturally regard the child's chances of life as materially enhanced as it approaches maturity. Hence the induction of labor should always be postponed as long as the circumstances of the particular case will admit.

The indications for the induction of premature labor are quite numerous and varied. The mere mention of some of them will suffice, while others admit of more or less discussion. The first and most common is where there exists a disparity between the capacity of the pelvis and the size of the child. In a large majority of such cases the difficulty is with the mother, the dimensions of the pelvis being too small to admit of the passage of an ordinary fetal head at term: yet, by the anticipation of this event, labor may be accomplished with perfect safety to both mother and child, without even the aid of instruments. Again, the pelvis may be of ordinary capacity, or even above the average, and still the fetus may habitually attain extraordinary dimensions, so as to seriously jeopardize the life of the mother

and involve a sacrifice of the child. Sometimes both of the foregoing conditions of pelvic contraction and extraordinary fetal development may coexist.

As it does not often happen that these difficulties are recognized by the accoucheur in advance of the first labor, it is unfortunately true that many valuable lives are thus lost which might otherwise be saved. It is chiefly, therefore, after the peril of one confinement has been passed that the physician has an opportunity of improving the experience which previous events have demonstrated. Most obstetrical authorities hold that it is useless to undertake this operation with any promise of success when the shortest pelvic diameter falls below two and one-half inches. English obstetricians place the minimum limit at two and three-fourths inches. Some few deliveries have been accomplished where the diameter has been but two and one-fourth, and that limit has been mentioned by Tarnier and a few others, but it is evident this is not sufficient space to admit the passage of a viable child except with the rarest of exceptions. Whenever, therefore, the shortest diameter falls below two and three-fourths, or at least two and one-half inches, it is a case for craniotomy. For it must be borne in mind that the average fetal head at seven months measures in its bi-parietal diameter two and three-fourths inches, which is susceptible of a compression varying from one-fourth to half an inch. At seven and a half months the transverse diameter of the head measures three inches; at eight months three and three-sixteenths inches; at eight and a half months, three and three-eighths inches; at nine months from three and one-half to three and three-fourths inches. The degree of pelvic contraction must be our guide as to the time at which labor should be invoked. For, taking into consideration the measurements just mentioned, and making a fair allowance for compression of the cranial bones, we can form a tolerably correct estimate of the limits beyond which parturition at any given period would be possible.

Of course it must be understood that these figures are mere approximations which are liable to exceptions, for we have no means of ascertaining beforehand what the size or firmness of any particular head may be. This is especially the case in first

pregnancies, for, although the accoucheur may be aware of a slight pelvic contraction, he naturally shrinks from operative interference, hoping that by some good fortune labor may be effectually accomplished through the diminutive size and pliability of the fetal head. If, as is sometimes the case, this proves small and yielding, all may go well, but should the child be large and the head correspondingly developed, we at once encounter very serious difficulty, necessitating artificial delivery, and involving probably the life of the child, and possibly also that of the mother.

We believe that where due discretion is exercised the induction of premature labor should be resorted to in this class of cases with increasing frequency, offering, as it does, less hazard and suffering to the woman, and affording a far better chance to the child than forcible delivery by the forceps after a tedious labor, to say nothing of the risk of being compelled after all to resort to craniotomy. We can all recall many cases of this character, where women in successive labors have passed through great agony and peril with the loss of all or most of their children. In all such instances where the pelvic deformity is slight and the children have been found by experience to be large and vigorous at maturity, there can be no sort of question that the anticipation of the natural term of pregnancy by a few weeks would avoid much suffering and save many lives. The dread of such an operation in the minds either of the profession or laity is founded rather on theoretical than practical grounds, and when properly done, offers no extra hazard to the mother, while it affords every possible advantage to the child. Ossification in the fetus is greatly accelerated during the latter part of pregnancy, and the resistance of the head is correspondingly enhanced. As an example of what nature can do in this respect, it is only necessary to recall the fact that in birds and fowls the egg is covered with a hard shell within twenty-four hours, and although this is not altogether analogous to the point under discussion, yet it is a fact which has been observed in all cases of premature birth—even where nature is only anticipated by a few days—that the cranium is found to be decidedly more yielding. Hence Playfair remarks that a "week or a fortnight

might make all the difference between a labor of extreme severity and one of comparative ease."

In regard to the propriety of resorting to the induction of labor in primiparæ, Tarnier expresses himself in the following forcible manner. He says: "Many accoucheurs hold that in a first pregnancy premature labor ought not to be thought of when the pelvis has a diameter of more than three and three-eighths of an inch. Indeed, the fact that the woman is pregnant for the first time has been regarded as a formal contraindication of the operation. We shall state our own opinion the more freely on this subject, as we cannot understand why there should be any doubt about it. Premature artificial delivery is an innocent operation; how great, therefore, would be the regret if, after having waited until term, it became necessary to perform embryotomy upon a child which might have been saved by the former operation! In the interest, therefore, of the child itself, were it not better that it should encounter the inconvenience of a premature birth than the danger of a difficult delivery by the forceps? We would, therefore, in a case of first pregnancy, recommend premature delivery whenever we felt uncertain as to the result of labor at term, at the risk of being accused of having accomplished it unnecessarily; with much less hesitation, therefore, would we advise it when the pelvis is so contracted that labor at term would probably be very difficult or even impossible."

In this connection I am reminded of a remark made by one of the gentlemen who participated in the discussion at our last meeting, viz., that when opportunity offered he always "endeavored to examine his primiparous patients two months before confinement." At first sight this might seem to some as unnecessary, but when we reflect upon the importance to the female of the information to be thus derived, and which can be acquired in no other way, the proceeding appears in an altogether different light. It is the duty of the obstetrician to take a practical view of all things, and to run no unnecessary risks. No false modesty or diffidence should stand in the way when there is a possibility that a human life is at stake. Although such an examination might turn out to be needless in all save rarely excep-

tional cases, yet, if every woman could be made to understand that she might prove the exception, such a proposition, so far from seeming meddlesome in her sight, would strike her as of the most essential importance. It is to be hoped that the day will yet come when it will be considered the proper and customary thing for every female, pregnant for the first time, to consult her physician as to her physical fitness for the trial before her; in this way many malpositions might be corrected and pelvic deformities ascertained in time to avoid danger and possible death.

There is still another class of cases, already adverted to, which are occasionally encountered, where the propriety of the induction of premature labor should be taken into serious consideration. I allude to those cases wherein the pelvis is apparently normal, but where the child habitually proves to be of extraordinary size. I am quite sure that all of the gentlemen present can recall instances in their experience where this state of things has caused the death of the fetus in several successive labors in the same individual. For example, I know of a lady, the wife of a tobacconist residing on Geyer avenue in this city, who has been confined three times. She is rather above medium height and weight, the picture of physical health and with a capacious pelvis. She is some twenty-eight or thirty years of age. The husband's age is about fifty; he is five feet seven inches tall, thick set and powerfully built. The wife was attended in her first confinement by a skilful obstetrician, and after a most difficult labor was delivered by forceps of a still-born child weighing, in the nude state, fourteen pounds. In her second labor she had a similar experience and was delivered instrumentally with difficulty by a well-known midwife who is said to be quite expert with the forceps. This child was also born dead, and is said to have weighed eighteen pounds. The father informs me that there can be no mistake about this, for he weighed the child twice on two separate and reliable scales.

Being anxious for a living child and disheartened at his past experience, the husband resolved to have two physicians present at the third accouchment of his wife, so that in case of trouble they could assist each other. Dr. Atkinson and myself were engaged, and each of us informed of the two preceding labors.

We met together, talked the matter over, and concluded that inasmuch as the pelvis was capable of admitting the passage of an eighteen-pound child, we had every prospect of a happy termination of the case in hand. Labor came on suddenly with a rupture of the amnion, and I happened to be the first to reach the house. On making an examination I was horrified to find an enormous foot protruding from the vulva. Dr. Atkinson arrived in a few minutes and I hastily informed him of the situation. We lost no time in apprising the husband of the condition of affairs and gave it as our opinion that the chances of saving the child were very slight, indeed. We made every effort to turn by external manipulation, but in vain, and finally, when the buttocks descended, I stood ready to apply forceps to the head at the earliest possible moment. This proved impossible, however, for the head was arrested at the superior strait; the shoulders and arms were delivered with difficulty, and when this was accomplished, the vagina was filled by an immense neck, while the shoulders were jammed close up against the vulva. It was absolutely impossible for want of space to so manipulate the second blade as to get the forceps to lock. Delivery was finally completed at the expiration of an hour by continuous traction with the finger in the mouth. The child was dead of course, and weighed, naked, fourteen and a half pounds. This lady has not been pregnant since, but should she become so, I should unhesitatingly recommend the induction of labor at the eighth month, as the most certain means of securing her an easy labor and a living child.

Cases are occasionally met with in which tumors within the pelvis or within the abdomen and infringing on the entrance to the pelvis might call for the induction of premature labor; in which event the same general principles would apply as to the conditions already discussed.

The relation of this operation to the management of placenta previa is so fully recognized in practice as to preclude the necessity of further notice. We pass on therefore to the mention of many conditions of the mother's health in which the induction of premature labor might afford her great relief and save a child otherwise doomed to perish with her. Among these may

be mentioned persistent vomiting, chorea, anasarca arising from albuminuria, heart disease or other causes; ascites, certain diseases of the heart, lungs or liver; hydramnios; tensity of the abdomen—cau ing distressing pressure upon large blood vessels and other organs; aneurism, mania, convulsions, and in fact any disease or condition of the mother, "provided only"—as Playfair remarks—"we are convinced that the termination of pregnancy would give the patient relief, and that its continuance would involve serious danger.

It sometimes happens that the fetus dies *in utero* towards the latter end of successive pregnancies. When it is found that this is dependent upon degeneration of the placenta, it has been suggested by good authority that it would be well to anticipate these changes, and consequent death of the child, by the induction of premature labor, provided the period of viability has arrived. Should this proneness to placental degeneration be dependent upon syphilitic taint, however, which is very often the case, this procedure will be found of doubtful utility, for the reason that a syphilitic child when born prematurely would in all probability die under the best of care. Moreover, modern experience would indicate that the fetus can be more efficiently treated within the uterus than outside of it. I would, therefore, be slow to recommend the induction of premature labor in cases where there was a well grounded suspicion of syphilis, but rather depend upon vigorous medication directed to the mother's system, commencing early, with the hope of thus influencing the nutrition of the placenta.

In operating for the induction of premature labor the object in view is to excite normal physiological action in the uterus, with as little departure from natural conditions as possible. It has been in accordance with this idea that various methods have been advanced by their special advocates. Among these may be mentioned stimulation applied to the breasts, recommended by Frerichs and Scanzoni; various forms of vaginal tampon as practised by Hüter, Busch, Schoeller and Braun; the douche, introduced by Kiwisch and modified by Blot, Tyler Smith and others; carbonic acid jets into the cervix, as used by Scanzoni; dilatation of the cervix by tents as suggested by Kluge, and sub-

sequently by means of special instruments, such as the dilator of Busch, the spheno-siphon of Schnackenberg and the well-known rubber bags of Barnes. Then we have the various mechanical processes of intra-uterine stimulation; the detachment of the membranes accredited to Hamilton; the injection of small quantites of tar-water between the uterine walls and the amniotic sac, known as "Cohen's Method"; the introduction of bulbs, bougies, etc., into the uterus, as suggested by Krause, Simpson, Tarnier and others; in addition we have electricity, oxytocics and puncture of the membranes.

Some of the foregoing methods are more theoretical than practical, while others are not free from danger. They are all more or less uncertain as to the time required to bring on labor, though some are far more efficient than others. Among the earliest and most reliable is puncture of the membranes. This procedure is, however, not the safest for the child, especially in primiparæ, as the fetus is thus subjected to a maximum direct pressure by the uterine walls, a condition which is hazardous to its life, if the labor be at all prolonged. At the same time special circumstances may dictate this method in preference to others, as for example, in certain cases of placenta previa, when it is desirable to speedily contract the uterus and increase the energy of its action. This should not be done, however, prior to partial dilatation of the os, if the operation of turning is contemplated, in which case preference should be given to other measures tending to excite contractions and at the same time promoting dilatation without interfering with the integrity of the membranes. Perhaps the most objectionable of all the older methods of provoking labor is the administration of ergot and other oxytocics, for apart from their uncertainty they are now clearly recognized as absolutely dangerous.

Since this operation is called for mostly in cases of deformed pelvis, it will be found that some of the methods recommended are by no means easy of performance. If the brim is narrow, the uterus is high up and the os will be found pointing backwards and beyond the reach of the finger, so that it will require skilled assistance in order to successfully introduce tents or Barnes' dilators into the cervix. Even when the uterus is

steadied and pushed down from above, these manipulations will be found exceedingly difficult, and in some cases quite impossible without introducing the hand more or less completely into the vagina, under chloroform. It frequently happens that a Sims' speculum and a vulsellum prove of great service. Tamponing the vagina is very simple, but not by any means a certain method of inducing labor. The same may be said of douches; they frequently require to be often repeated, and may finally fail in the absence of other supplemental means. The injection of carbonic gas or of water into the uterus is conceded to be dangerous, a number of fatal cases having been reported by Depaul, Salmon, Simpson, Barnes and others; and in view of the fact that there are other methods of equal efficiency and involving less trouble, time and risk, they should be discarded. Barnes' rubber bags, or tents of tupelo or sponge, offer a valuable means of commencing dilatation of the cervix and stimulating uterine action. Instances have been recorded, however, in which the head of the child has been deflected by the presence of Barnes' dilator, producing a shoulder or breech presentation.

According to my own experience, the method of Simpson and Krause, which consists in the introduction of a gum bougie between the uterine wall and the amniotic sac, proves by far the safest and surest means of inducing labor. The bougie should be of large size, and slowly and carefully pushed up from four to eight inches, and allowed to remain *in situ*; the free end being wrapped in raw cotton and coiled up into the vagina. In this way it does not discommode the patient, who may be permitted to sit up or even walk around the room, if she so desires. The passage of a bougie as thus described is quite painful, and in sensitive patients it might have to be done under the influence of an anesthetic. Should the instrument happen to come in contact with the placenta, experience teaches that no serious bleeding results. If, as is sometimes the case, the amnion is ruptured in passing the bougie, it is not a matter of much regret, since the puncture usually occurs high up, and hence the escape of fluid will be slow, while at the same time it hastens labor. The superiority of this method consists in its simplicity, its efficiency and its freedom from all risk to either mother or

child; it has also the further advantage that it can, if necessary, be easily supplemented by any other means, such as dilatation of the cervix, the douche, or puncture of the membranes. On account of the uncertainty, trouble and risk attending the douche, however, especially when force is used, or the fluid is injected into the uterus, I prefer other methods and only employ it when the water has free exit, and under no circumstances would I feel safe in introducing the nozzle of the syringe further than necessary to have the stream, which should be continuous and gentle, come in contact with the membranes. When thus employed the douche may prove very efficient, and is highly commended as a means of inaugurating uterine contraction. The strong testimony against the douche, however, which has been recorded by many European authorities, such as Barnes, Playfair, Tarnier and others, should not be ignored, and I can only say that I have gotten along very well without it. The presence of a bougie will be found in no wise to prevent the passage of a tent or Barnes' dilator by its side into the cervix, and the two can thus remain and mutually assist each other.

In most of the cases in which I have employed the bougie, no additional measures have been required; in some, pains have commenced promptly and regularly from the moment of introduction, while in all instances labor has supervened within twenty-four hours. Instances are recorded, however, in which the uterus has proven extremely torpid in spite of a combination of three or more of the most approved methods.

Time is always an object in this operation, especially when the physician has to visit the patient at a distance. It is of equal importance that the woman be not discouraged and worn out by long continued efforts to attain the object in view. In order to encompass these ends, we would recommend *three* measures for the induction of premature labor in the order of their respective merits. 1st, *The bougie*; 2nd, *Tents or other dilators*; 3d, *The douche.*

I have induced premature labor, independent of cases of placenta previa, five times; twice with the same patient. In one case there was a breech presentation, and the child was still-born. Another child died during the first week. The remaining children survived and did well.

Case I.—Was somewhat remarkable in its history. Mrs. H. ——— an extremely emaciated lady, residing in Cincinnati, was taken by her husband to a watering place in West Virginia near Parkersburg, where I then resided. She had been examined by several physicians, and was said to have an ovarian tumor. The abdomen was enlarged, and contained a uniformly firm and rounded tumor, occupying a central position, and extending several inches above the umbilicus. The patient was suffering great distress in breathing, owing to the enlargement of her abdomen, and this was aggravated by extensive tubercular deposits in both lungs; in short she was in the last stage of phthisis.

Although a consultation in this case, held only two weeks previously, had decided that the abdominal tumor was ovarian or fibroid, it seemed strange when I saw the patient that there should be any doubt as to the diagnosis. The fetal heart was plainly heard; motion was distinct on palpation and also on inspection; even the outlines of the child could be readily made out through the attenuated abdominal walls. The patient, however, seems never to have suspected her true condition, she having attributed the cessation of her menses to ill health.

The dyspnea increased rapidly, and the patient and her friends began to intercede with me to bring on labor with a view of affording some relief. She was apparently past the seventh month of pregnancy, and it was plain to be seen that she could not survive to full term. At first I was disinclined to accede to the patient's earnest solicitations, but in a short time her condition became so desperate that something had to be done, and I consulted with Dr. R. P. Davis, and afterwards with Dr. A. G. Clark, of Parkersburg. These gentlemen both took the ground that as the mother was doomed in any event, we should give the child a chance for its life. After explaining all the risks our decision was eagerly accepted by the wretched patient and her friends.

A large gum bougie was passed six inches into the uterus by the side of the membranes at 10:30 A. M. Slight pains were immediately excited, and in six hours uterine contractions were vigorous and regular. At 8:30 P. M a living

child weighing four pounds was born after a remarkably easy and natural labor. The mother stood the ordeal better than any of us expected, and experienced the most perfect sense of relief; in fact her general improvement was very remarkable. For the first two weeks she gained in all respects; she slept well, her digestion, appetite and strength evinced great improvement. Unfortunately, at the end of three weeks however, she was seized with a diarrhea which quickly carried her off. Owing to the fact that the weather was cool and damp, and there being no means of heating the room, which was in a summer hotel, the child did not do well; it died in about a week.

Case II.—Mrs. J. ——— had been in labor seventy-two hours with her first child, Dr. John Shickle, of Parkersburg, being in attendance, when I was called in. On making an examination, I found the head resting against the pubic arch which was very narrow, owing chiefly to the encroachment of the left ramus towards the median line. On making inquiry I learned that the right leg of the patient was several inches shorter than the left, it having been dislocated in childhood. The consequence was that the pelvis was pushed in on the left side—especially the left side of the pubic arch. Delivery was effected with difficulty, after perforation of the head, the child being very large. Although extremely exhausted, the patient made a good recovery, and within six months was again pregnant. I made a note of her reckoning and advised the induction of premature labor. In the meantime a consultation was held and the pelvis examined, which resulted in a decision to perform the operation at seven and a half months. When the proper time arrived, a bougie was passed into the uterus; in doing so, however, the membranes were accidentally ruptured. Labor came on in three hours, and, at the end of nine hours, a girl baby was born, which survived and grew up to be a bright and interesting child.

Case III.—The same patient, Mrs. J., again became pregnant, and at the end of seven and a half months I brought on labor by the same method, only that the amnion was not ruptured in this case. The result, however, was not equally satisfactory; a vigorous male child presented by the breech and was suffocated before the head could be extracted.

Case IV.—Mrs. W., aged 19, pregnant with her first child, was attacked during the sixth month with violent chorea. The contortions of the patient were pitiable to behold. Such was the violence of the spasmodic action of all the voluntary muscles that it was difficult to feed the patient, and short interims of sleep were only procured by large doses of chloral. All efforts at motion so aggravated her suffering that she would pass her urine and feces in bed rather than exert herself in the least. Thus matters progressed until near the end of the eighth month, when it became evident that the patient would die unless relieved. She was much emaciated and covered with bed-sores and bruises. At the request of the family, the late Dr. John S. Moore was called in, and we decided to lose no time in bringing on labor. The patient was chloroformed and a large sized bougie passed seven inches into the uterus and left there. I should have been satisfied with this, but Dr. Moore suggested that while she was under the influence of the anesthetic it would be better to puncture the amnion in order to hasten labor. This was done by means of a stylet. Uterine contractions followed promptly and at the end of fifteen hours the patient was delivered, she being kept under the joint influence of chloral and chloroform during the latter part of labor. The child was reared without difficulty. The mother was kept quiet with chloral for thirty-six hours after delivery; for the first day there was some twitching of the limbs whenever she was aroused from sleep, but this subsided by the second day, and she made a good recovery.

Case V.—During the winter of the present year I received a letter from Dr. Robert J. Hornsby, of Bunker Hill, Illinois, informing me that a relative of his expected to be confined in June, and in view of the great difficulty encountered in two preceding labors, he desired me to be present if possible. At the same time I received the following history. Mrs. E. was confined with her first child some four years since; the labor proved very severe and protracted, and was finally terminated with great difficulty by forceps. The child was very large and born dead. After two years she again passed through the same ordeal with a like result. Both Dr. Hornsby and his associate, Dr. Gross, of Gillespie, attributed the difficulty to the unusually

large size of the children, and to a contracted pelvis, which is deep and narrow, with a short antero-posterior diameter at the brim. The patient having narrowly escaped with her life on the two former occasions, both she and her friends were extremely apprehensive in view of a repetition of the same peril. Besides, she was particularly anxious that the coming child might be born alive. Later in the spring Dr. Hornsby wrote me that the abdomen was of unusual size, indicating that the fetus was large.

After considering all the circumstances, I expressed the opinion that at full term I could not probably accomplish any more than had already been done by her skilful attendants, and as the patient resided fifty miles out of the city, I might not be able to reach her promptly. I therefore recommended the induction of labor at the end of the eighth month, which was agreed upon. The calculation was that labor would occur between the 5th and 10th of June. I accordingly arranged to operate on the 9th of May. I reached the patient's residence about 10:30 A. M. on that day, and a half hour afterwards passed a large sized gum bougie five inches into the uterus and allowed it to remain. Pains came on immediately and continued with regularity and increasing severity, so that by 4 P. M. the os was fully dilated, when I removed the bougie and ruptured the membranes; the pains were extremely efficient, and in less than three hours the child was born, and soon gladdened the mother's heart by its cries. The placenta and cord were of unusual size, giving every indication that had the full nine months elapsed, the fetus would have attained large dimensions. The mother in this case made a speedy recovery. A letter from her, dated August 9th, gives the subsequent history of the child, as the following extract will show:

"*Dear Friend:*—Your dear little girl is three months old today and I want to write to you and tell you how well, fat and sweet she is. We weighed her this morning, and she weighed fourteen pounds, just twice as much as when she was born." * *

In conclusion a word should be said in regard to the care of the child. A vigorous child, premature by only a few weeks, will get along nearly as well as one born at term. But if the in-

fant is feeble, or if born more than a month before its time, great care should be exercised to keep it warm, for its vitality is easily extinguished by cold. If possible a wet nurse should be provided until the mother's milk flows freely. No time should be consumed in bathing it; its body should be quickly sponged dry with a soft, warm towel or flannel, a diaper put on, and its body carefully wrapped in carded wool or cotton. It can then be placed in a basket or cradle and the temperature maintained by bottles or bags of hot water.

If desired, a very effectual contrivance for maintaining a uniform temperature may be manufactured by a tin-smith, consisting of two rectangular tin or sheet-iron pans. The smaller pan being two feet long, by from fifteen to twenty inches in width and six inches deep, is supported on four legs two inches long and placed in the outer receptacle, which should be four inches larger in all its dimensions. The intervening space can be filled with water which is kept in the neighborhood of 98°. The outer pan may be provided with a faucet by means of which the water may be drawn off and renewed whenever the temperature falls much below the required standard. While it is important to keep the temperature of the child up to the normal, it is equally dangerous to subject it to excessive heat. Young children are exceedingly sensitive to an inordinate temperature, and I have known it to prove fatal.